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PATENT APPLICATION
Serial No. 10/774,882**REMARKS**

Claims 1-23 are pending in the captioned Application in which claims 1-3, 7-8 and 21 are rejected, claims 4-6 are objected to, claims 9-16 and 22-23 are allowed, and claims 17-20 are withdrawn.

Claim 1 is amended to make express the inherent property already present therein that a molecularly flexible dielectric electronic substrate that comprises at least one (or more) layers of a molecularly flexible dielectric adhesive having a modulus of elasticity less than about 500,000 psi inherently has a modulus of elasticity less than about 500,000 psi, which is supported, for example, by the specification at paragraphs [024] and [048]. Claims 1-3, 4-5 and 16 are amended to correct informalities to overcome the Examiner's objection. The amendment to claims 1-3, 4-5 and 16 are not made for purposes of patentability, but are made to correct grammatical and/or typographical errors and/or to remove objections by the Examiner, notwithstanding the patentability of the original claims.

This amendment does not narrow the scope of any claim element or limitation and so is not limiting of any claim element or limitation, and Applicant reserves the right to the benefit of the doctrine of equivalents with respect thereto.

Restriction:

The Examiner has acknowledged Applicant's election of claims 1-16 and 21-23 of Group I and has examined those claims, and has withdrawn the election of species.

Request for Reconsideration:

Applicant requests reconsideration of the restriction which has now been made final.

The restriction should be withdrawn because the Examiner's stated reason therefor in the present action is incorrect, as was the original reason. Examiner states that "the via can be made by CVD or PVD instead of using plating."

None of Applicant's method claims 17-20 recites using plating to make a conductive via as Examiner alleges and neither do any of Applicant's method claims. In fact, method claim 17 recites "building up conductive material on the metal foil to fill the via openings, thereby forming conductive vias therein" which step could be performed by any process that meets the literal limitation. It is submitted that there are plural ways to "build up" conductive

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material and that a proper search of the product claims, of the method claims, or both, should include all such methods including plating, electroless plating (which is plating), CVD or PVD, and possibly others, as well as conductive vias formed by other methods. Plating as recited in the last clause of claim 17 is directed to plating to provide external contacts on at least one of the conductive vias, the contacts of the patterned metal foil, or both, and not to building up the conductive vias.

For examination, it does not matter how a conductive via is "built up" only that it is, and the search required is the same whether examining the product claims, the method claims, or both.

Thus, the restriction is contrary to MPEP §803 which states "Examiners must provide reasons and/or examples to support conclusions."

For the search regarding claims 1-16 and 21-23 to be complete, the Examiner should also search the art classifications pertaining to the method of claims 17-20 which may also disclose various products that may be similar to those as recited by claims 1-16. Specifically, product claim 11 recites "conductive vias are built up of plated metal," product claims 21 and 23 recite "a plated electrically conductive layer..." and product claim 22 recites "said conductive vias are built up of plated metal" and so those features should be searched in examining the product claims 1-16 and 21-23.

The Patent Law requires that an inventor describe his invention and the best mode for making and using the invention (35 U.S.C. §112), and so patents directed to the article should also describe the method for making the article therein, and should be uncovered in a search covering the article claims, as is borne out in the present case:

Applicant previously asserted "that in searching product claims 1-16 and 21-23 the Examiner is likely to search references and classifications that are likely to also disclose methods that may be similar to that of claims 17-20...." Both the Yamamoto et al and the Brodsky et al references cited by the Examiner describe and claim both an article and a method for making the article, thus supporting the argument that the necessary search for examining all of claims 1-23 is substantially the same and is not a burden on the Examiner.

Further, U.S. Patents 6,288,905 and 6,376,769, which issued from the priority applications in the present application, both include claims directed to an article and claims

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directed to the method for making the article, as the case with respect to the claims 1-23 of the present application. Other references cited in U.S. Patent 6,376,769 are similar. For example, the Yamaji and the Okoshi et al references describe both the prior art article and the method for making the prior art article.

Thus, the search required if all of claims 1-23 are examined is not necessarily more complex or extensive than that for claims 1-16 and 21-23.

Moreover, claims 21 & 23, which have already been searched and examined, recite a "plated electrically conductive layer on at least the contact sites" of the metal foil, and so it is submitted that the feature of plating recited in claim 17 has been included in the Examiner's search.

In addition, elected claims 1-16 and 21-23 of Group I directed to the electronic substrate article comprise elements that are substantially like the elements recited, for example, in method claims 17-20. As a specific example:

GROUP I — CLAIMS 1-16 ELECTRONIC SUBSTRATE	GROUP II — CLAIMS 17-20 METHOD FOR MAKING
A first layer of molecularly flexible dielectric adhesive having a modulus of elasticity less than about 500,000 psi, having a glass transition temperature less than about 0°C, and having the ability to withstand soldering at a temperature of about 220°C. [claim 9]	Providing on one surface of the sheet of metal foil at least one layer of a molecularly flexible dielectric adhesive having a modulus of elasticity less than about 500,000 psi, having a glass transition temperature less than about 0°C, and having the ability to withstand soldering at a temperature of about 220°C. [claim 17]
A first metal foil on a first exposed surface of said first layer of molecularly flexible dielectric adhesive, wherein said first metal foil is patterned to define a pattern of first electrical conductors having a plurality of contact sites for receiving the contacts of an electronic device. [claim 9]	Patterning the metal foil to form a pattern of contacts and conductors electrically connected to the conductive vias in the molecularly flexible dielectric adhesive layer. [claim 17]
A plurality of electrically conductive vias through said first layer of molecularly flexible dielectric adhesive.... [claim 9]	Building up conductive material on the metal foil to fill the via openings, thereby forming conductive vias therein. [claim 17]

Thus, the elements of the Group I article and of the Group II method are similar and so the searching required for examination of all of the claims pending should not be substantially greater than is that for examining only the claims of elected Group I, for example.

In addition, the restriction made by the Examiner between article and method claims

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in the priority application that issued as US Patent 6,376,769 was withdrawn upon argument similar to that herein, and both method and article claims were issued in the same Patent. Thus, consistency requires like action in the present Application.

Applicant's response herein provides reasons overcoming the rebuttable presumption accorded the Examiner for making a *prima facie* explanation in an *initial* restriction requirement and the requirement should be withdrawn. MPEP §803.

In this case, because "search and examination of the entire application can be made without serious burden, the Examiner must examine it on the merits, even though it contains claims to independent and distinct inventions." MPEP §803 (emphasis added).

"It still remains important ... that no requirements be made which might result in the issuance of two patents to the same invention." MPEP §803.01.

Objections:

The Abstract is objected to on unspecified grounds, and it is noted that the paragraphs given by the Examiner set forth what is desirable ("should") in an abstract and not what is a legal requirement ("shall"). Although Applicant believes the Abstract sets forth a clear and concise statement of the invention, Applicant has amended the Abstract to be more specific regarding certain features of the invention.

Claims 1-3 and 16 are objected to because of certain informalities. In claim 1, the Examiner's proposed change is adopted.

Regarding claims 2 and 3, the Examiner's proposed change is not adopted. Applicant notes that claim 1 (from which claims 2 and 3 depend) does not positively recite "an electronic device," but merely recites that the contacts are "for receiving... contacts of an electronic device." Thus it would be improper to recite "the electronic device" in claims 2 and 3 because there is no antecedent therefor in claim 1. Claim 3, however, does positively recite "further comprising an electronic device..." in line 2 thereof and so the claims depending from claim 3 do recite "said electronic device." Claim 3 is amended in the phrase suggested by the Examiner to recite "ones of the corresponding contact sites" to be consistent with claim 1.

Regarding claim 16, the Examiner's proposed change is not adopted. Applicant notes that claim 9 (from which claim 16 depends) does not positively recite "an electronic device,"

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but merely recites "contact sites for receiving the contacts of an electronic device." Thus it would be improper to recite "the electronic device" in claim 16 because there is no antecedent therefor in claim 9.

This amendment does not narrow the scope of any claim element or limitation and so is not limiting of any claim element or limitation, and Applicant reserves the right to the benefit of the doctrine of equivalents with respect thereto.

Accordingly, the objections should be withdrawn.

Rejections Under 35 U.S.C. §103(a):

Claims 1-3 and 7-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,265,782 to Yamamoto et al in view of US 5,847,929 to Bernier et al. The rejection is respectfully traversed.

Yamamoto et al relates to *inter alia* a semiconductor chip mounting substrate. The Examiner applies the configurations of Figures 1-3, 5 and 7A-7F. Figure 1A shows a single layer film 1 and Figure 1B shows a triple layer adhesive having the adhesive 1 on both sides of a polyimide film 2, neither of which has any metal foil thereon and which appears to be an adhesive layer 3 for use in subsequent embodiments. Figure 3 of Yamamoto et al shows a semiconductor mounting substrate including a tape-like wiring substrate 5 of polyimide (column 20, lines 53-58 and column 21, lines 22-28) on which copper wiring and through holes have been formed, and on which the adhesive 3 has been thermo-compression bonded (column 21, lines 22-28). Figure 5 shows the substrate of Figure 3 with a semiconductor chip face down bonded thereon and thereafter terminals including solder balls 9 are added (column 20, line 64 to column 21, line 6 and lines 57-60). Figures 7A-7F show steps in a method for making a device as in Figure 5 (column 22, lines 23-63).

Thus, all of the semiconductor substrates shown by Yamamoto et al include an organic circuit substrate 4 or 5 of polyimide which has a modulus of elasticity of more than 1,000,000 psi. Polyimide film has a modulus of elasticity of about 2,000,000 psi (about 13790 MPa.) (see specification at page 6, paragraph [024]). As a result, the Yamamoto et al substrate must have a modulus of elasticity of about 2,000,000 psi, which far exceeds a modulus of elasticity of less than about 500,000 psi recited by Applicant's claims. Thus, nothing in Yamamoto describes or suggests the "molecularly flexible dielectric electronic

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substrate having a modulus of elasticity of less than about 500,000 psi” of Applicant’s claims.

Bernier et al relates to attaching heat sinks directly to flat chips and chip carriers, and not to dielectric substrates as claimed. Examiner cites to Figure 5 of Bernier et al and to the flexible substrate 256 utilized therein which is a laminate of patterned copper films and polyimide films. (Column 8, lines 50-54). Polyimide film has a modulus of elasticity of about 2,000,000 psi (about 13790 MPa.) (see specification at page 6, paragraph [024]). Nothing in Bernier et al describes or suggests the molecularly flexible dielectric electronic substrate claimed by Applicant, and Bernier et al does not supply what is lacking in Yamamoto.

Moreover, the “electronic device (280)” of Bernier et al as alleged by the Examiner is not an electronic device as the term is used by Applicant (see, e.g., Applicant’s specification at paragraph [065]), but is a “substrate (such as fiberglass epoxy or a flexible laminate described above),” i.e. a laminate of patterned copper films and polyimide films. (Column 9, lines 20-21; column 8, lines 50-54).

Both references utilize polyimide film which has a modulus of elasticity of about 2,000,000 psi, (more than about 13790 MPa.) (see specification at page 6, paragraph [024]) and so limit the modulus of elasticity of the layered structure to be no less than 2,000,000 psi, (more than about 13790 MPa.). While such film may be “flexible” in the usual non-technical sense of being able to be flexed, it is not “flexible” or “molecularly flexible” as that term is used in the captioned Application. (See specification at page 6, paragraph [024]). Thus any structure including a polyimide film cannot meet or suggest a structure having a modulus of elasticity of less than about 500,000 psi.

Because both Yamamoto et al and Bernier et al lack any description or suggestion of the molecularly flexible dielectric electronic substrate claimed by Applicant, they cannot render Applicant’s claims obvious, even if properly combinable.

The burden is on the Examiner to particularly identify the suggestion, teaching, or motivation in the reference(s) for their combination, and not just naming similarities between the reference(s) and the claimed invention. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654 (Fed. Cir. 2000), 57 U.S.P.Q.2d 1161, 1166; *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999), 50 U.S.P.Q.2d 1614, 1618.

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"[A] rejection cannot be predicated on the mere identification ... of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed."

Ecolochem Inc. v. Southern California Edison, 56 U.S.P.Q.2d 1065, 1076 (Fed. Cir. 2000) quoting *In re Rouffet*, 149 Fed.3d 1350, 1357 (Fed. Cir. 1998), 47 U.S.P.Q.2d 1453, 1456.

The combination is improper because the Examiner has not set forth the basis for any combination. Moreover the alleged basis, i.e. "in order to provide a level interconnection structure to form an enclosure electronic/semiconductor packaging" is not seen to bear any relevance to the structure set forth in Applicant's claims.

Further, the Examiner's assertion is not supported by the references, but is impermissible hindsight based upon the teaching of Applicant's invention.

"When prior art references require selective combination...to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself..."

Uniroyal Inc. vs. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434, 1438 (Fed. Cir. 1988). It is impermissible to use the claims as a frame and the prior art references as a mosaic to piece together a facsimile of the claimed invention, and the Examiner must avoid the "insidious effect of a hindsight syndrome wherein only that which the inventor taught is used against the teacher". *W. L. Gore & Assoc. v. Garlock*, 721 F.2d 1540, 1552, 1553, 220 U.S.P.Q. 303, 312, 313 (Fed. Cir. 1988).

Accordingly, the combination is improper under the law and the rejection should be withdrawn.

Moreover, even if such combination could be made, the resulting structure would not be that of the claimed invention but would just be that of Yamamoto et al or of Bernier et al, neither of which describe or suggest Applicant's invention.

Applicants' claim 1 is patentable at least because it recites:

"A molecularly flexible dielectric electronic substrate having a modulus of elasticity less than about 500,000 psi, said molecularly flexible dielectric electronic substrate comprising:

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"at least one layer of molecularly flexible dielectric adhesive having a modulus of elasticity less than about 500,000 psi, having a glass transition temperature less than about 0°C, and having the ability to withstand soldering at a temperature of about 220°C;

"a metal foil on one surface of said layer of molecularly flexible dielectric adhesive, wherein said metal foil is patterned to define a pattern of electrical conductors having a plurality of contact sites for receiving a plurality of contacts of an electronic device,"

which is not described or suggested by Yamamoto et al and/or by Bernier et al, whether taken individually or properly combined.

Applicant's claims 2-3 and 7-8 are patentable at least because they depend from one of patentable claim 1.

Claim 21 is rejected under 35 U.S.C. §103(a) as being unpatentable over Yamamoto et al in view of Bernier and further in view of US 5,984,691 to Brodsky et al. The rejection is respectfully traversed.

Yamamoto et al and Bernier et al are discussed above.

Brodsky et al relates to a flexible circuitized interposer with an apertured member wherein a substrate 50 (Figure 1) includes a plated through hole 63. Substrate 50 comprises one or more substrates 53 of polyimide and a support member 60 that is rigid, i.e. is of polyimide (column 6, lines 15-18 & 43-49), and so is not flexible as set forth above in relation to both Yamamoto et al and Bernier et al. Therefore, Any combination of these references, if properly combinable, cannot describe or suggest the molecularly flexible dielectric electronic substrate of claim 21.

Applicant's claim 21 is patentable at least because it depends from patentable claim 1.

Accordingly, the rejections under 35 U.S.C. §103(a) are overcome and should be withdrawn.

Allowable Subject Matter:

The objection to claims 4-6 is overcome by claims 4 and 5 being rewritten in independent form. Withdrawal of the objection is in order and such action is solicited.

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Regarding allowed claims 9-16 and 22-23, the Examiner's reasons for allowance set forth in paragraph 8 of the Office Action repeat the assertions of what the references disclose that are disputed herein above. Applicants submit that each of allowed claims 9-16, 22 and 23 is allowable in its own right because of the particular combination of elements that each recites.

Conclusion:

Applicant respectfully requests that the restriction requirement be reconsidered and withdrawn, that the objections be withdrawn, that the rejection of claims 1-3, 7-8 and 21 be withdrawn, and that the Application including claims 1-23 be allowed.

The number of claims is unchanged and the number of independent claims is increased by two, and the \$200.00 fee therefor should be charged to Deposit Account 04-1406. A Fee Transmittal is filed herewith. Should the fee calculation be incorrect, or should any additional or other no fee be due in consequence of this timely filed Response, please charge such fee and deposit any refund to Deposit Account 04-1406.

The Examiner is requested to telephone the undersigned attorney if there is any question or if prosecution of this Application could be furthered by telephone.

Respectfully submitted,
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